ble and manageable. No alterations in absolute lymphocyte number, the lymphocyte subsets studied (CD3, CD4, CD8, CD19) or CD4/CD8 ratio were observed in patients receiving more than one treatment cycle, although there were significant and non-uniform variations in the values of the different lymphocyte subsets studied when pre- and post-treatment values were compared. There was also a significant increase in the CD4/CD8 ratio. Tumour regressions were observed in two patients (epidermoid carcinoma of the cervix and Ewing's sarcoma). The CsA dose recommended for phase II trials is a 55 mg kg^{-1} loading dose followed by a 3-day c.i. of 16 mg kg^{-1} day^{-1} simultaneously with DOX and IFX at the doses administered in this study.

Key words

Resistance; doxorubicin; ifosfamide; cyclosporin A

Characterization of *Brucella abortus* and *Brucella melitensis* Native Haptens as Outer Membrane O-Type Polysaccharides Independent from the Smooth Lipopolysaccharide

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Brucella native haptens (NHs) extracted with hot water from smooth (S)-type *B. abortus* and *B. melitensi*> were purified to high levels of serological activity and compared with the polysaccharide obtained by acid hydrolysis (PS) of the S lipopolysaccharide (S-LPS). By ^{13}C nuclear magnetic resonance analysis, NHs showed the spectrum of a homopolymer of α4-1,2- or α4-1,2- plus α4-1,3-linked 4-formamido-4,6-dideoxy-D-mannose (*N*-formylperosamine) previously reported for the LPS O chain. However, while PS contained up to 0.6% 3-deoxy-D-manno-2-octulosonate, this LPS-core markker was absent from NH. High perforrmance liquid chromatography and thin-layer chromatography showed heterogeneity in NH purified from whole cells but not in PS. By immunoprecipitation, polysaccharides indistinguishable from NH were demonstrated in extracts obtained with phenol-water, saline at 60° C, and ether-water treatments, and none of these treatments caused S-LPS hydrolysis detectable with antibodies to the O chain and lipid A. Two lines of evidence showed that NH was in the cell surface. First, NH became biotinylated when *B. abortus* live cells were labelled with biotin-hydrazide, and the examination of cell fractions and electron microscopy sections with streptavidin-peroxidase and streptavidin-coloidal gold, respectively, showed that labelling was extrinsic. Moreover, whereas only traces of NH were found in cytosols, the amount of NH was enriched in cell envelopes and in the outer membrane blebs spontaneously released by brucellae during growth. Interactions between HN and S-LPS were observed in crude cell extracts, and such interactions could be reconstituted by using purified NH and LPS. The results demonstrate that NH is not a hydrolytic product of S-LPS and suggest a model in which LPS-independent O-type polysaccharides (NH) are intertwined with the O chain in the outer membrane of S-type brucellae.